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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application]This invention relates to the polyolefin-system-resin constituent which contains an inorganic bulking agent.

While the stability outstanding to thermal oxidation is shown in more detail, it is related with the polyolefin-system-resin constituent which is excellent also in hue.

[0002]

[Description of the Prior Art]Since [outstanding] chemical [physical and] and it has electric nature, polyolefin system resin including polyethylene or polypropylene is used widely, but. The technique of blending inorganic bulking agents, such as talc, is adopted in order to improve mechanical properties, such as the rigidity, shock resistance, dimensional stability, and heat resistance, furthermore. On the other hand, in order that polyolefin system resin may tend to receive thermal oxidation degradation, the antioxidant formula of concomitant use of a phenolic antioxidant and a sulfur system antioxidant, etc. is taken conventionally. However, if it is in the polyolefin system resin which contains an inorganic bulking agent, probably because an inorganic bulking agent will be adsorbed in an antioxidant, there is a fault to which the stability to thermal oxidation falls remarkably, and it was anxious for the improvement.

[0003]Then, in order to improve the stability to the thermal oxidation of the polyolefin system resin which contains an inorganic bulking agent, The technique (publication-number 1-188543 item gazette) of blending an epoxy compound, the technique (the publication-number 2 No. - 49042 gazette) of blending amide or an amine compound, etc. are proposed.

[0004]

[Problem(s) to be Solved by the Invention]However, in these publicly known methods, the stability to sufficient thermal oxidation was not necessarily obtained. When an epoxy

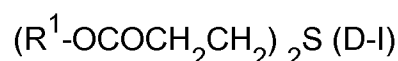
compound was used, there was also a problem that a resin composition discolored. Solution was given to the point which carried out this invention person claudication, and while the stability outstanding to thermal oxidation was shown, as a result of studying many things, it resulted in this invention that the polyolefin-system-resin constituent which is excellent also in hue should be developed.

[0005]

[Means for Solving the Problem] That is, this invention provides a polyolefin-system-resin constituent containing a polyolefin system synthetic resin (A), an inorganic bulking agent (B), and the following ingredients (C) thru/or (F).

[0006](C) A phenolic antioxidant: 3,9-screw chosen from the following compound group [2-{3-(3-t-butyl-4-hydroxy-5-methylphenyl) propionyloxy}-1,1-dimethylethyl]-2, 4, 8, 10-tetraoxaspiro [5.5] An undecane, 1,3,5-tris (3,5-di-t-butyl-4-hydroxybenzyl) isocyanurate, and tetrakis [3-(3,5-di-t-butyl-4-hydroxyphenyl) propionyloxymethyl] Methane, [0007](D) Following general formula (D-I) And sulfur system antioxidant chosen from a compound group shown by (D-II) : [0008]

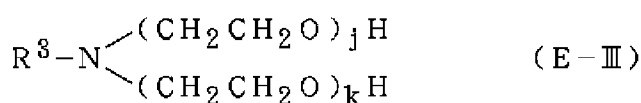
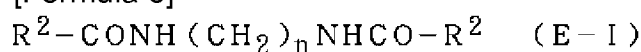
[Formula 4]



[0009](R¹ expresses the alkyl of the carbon numbers 4-20 among a formula)

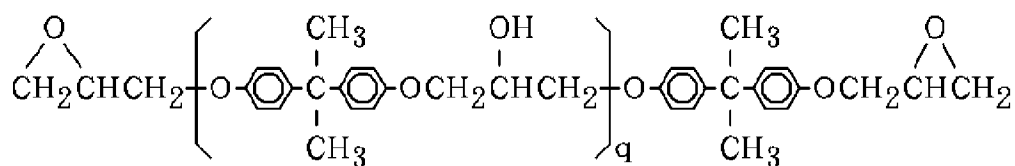
[0010](E) Following general formula (E-I) Or (E-III) nitrogen-containing compound chosen from the compound group shown : [0011]

[Formula 5]



[0012](R² among a formula the alkyl of the carbon numbers 5-21, or the alkenyl of the carbon numbers 5-21) [express and] n expresses the integer of 1-6, R³ expresses the alkyl of the carbon numbers 8-18, the alkenyl of the carbon numbers 8-18, or acyl with 8-18 total carbon, j and k are one or more, respectively, and the number which has j+k between 2-10 is expressed -- and [0013](F) Bisphenol A type glycidyl ether system epoxy compound shown with a following general formula (F-I) : [0014]

[Formula 6]



(F - I)

[0015](q expresses zero or more numbers among a formula).

[0016]The polyolefin system synthetic resin (A) used by this invention, The homopolymer of alpha olefins, such as ethylene, propylene, 1-butene, 1-hexene, and 4-methyl-1-pentene, the copolymer of random block copolymer, alpha olefin, and other copolymerizable unsaturated compounds which consist of two or more sorts of alpha olefins, etc. are included. These are independent, respectively, or can blend and use two or more sorts.

[0017]As a homopolymer of alpha olefin, polyethylene, polypropylene, poly-1-butene, polyisobutene, a Polly 3-methyl-1-butene, poly-4-methyl-1-pentene, etc. are illustrated. As a copolymer of alpha olefins, Ethylene/propylene copolymer, ethylene / 1-butene copolymer, propylene / 4-methyl-1-pentene copolymer, propylene / 1-butene copolymer, 1-decene / 4-methyl-1-pentene copolymer, ethylene / propylene / 1-butene copolymer, etc. are illustrated. What uses mono- unsaturated compounds, such as the polyunsaturated compound or acrylic acid like conjugated diene or nonconjugated diene, methacrylic acid, and vinyl acetate, as a copolymerization ingredient with alpha olefin is contained. Graft denaturation of these polymers may be carried out with that by which acid denaturation was carried out, for example, alpha, beta-unsaturated fatty acid, alicyclic carboxylic acid, or these derivatives.

[0018]In this invention, mixed material which blended a synthetic rubber with these polyolefin system synthetic resin according to a use can also be used. As a synthetic rubber suitable for blending, ethylene / alpha olefin copolymerization rubber is illustrated. Alpha olefin of ethylene and others, [copolymerization rubber / ethylene / / alpha olefin] For example, copolymerization rubber with propylene, 1-butene, 1-hexene, etc., ternary polymerization rubber to which a system of ethylene/propylene was made to carry out copolymerization of nonconjugated diene, for example, ethylidene NORUBONEN, the dicyclopentadiene, etc. as the third component, etc. are included.

[0019]If it is in a constituent which blended an inorganic bulking agent like this invention, what blended a synthetic rubber is especially preferably used for a copolymer of a synthetic resin of a propylene system, for example, polypropylene, propylene, and other alpha olefins, or these as base resin.

[0020]As an inorganic bulking agent (B) used by this invention, talc, mica, carbon black, Titanium oxide, a zinc oxide, aluminium hydroxide, calcium carbonate, magnesium carbonate, Calcium sulfate, barium sulfate, a calcium silicate, a magnesium silicate, cerite, kaolin, zeolite, silica, asbestos, glass fiber, carbon fiber, barium titanate, lead titanate, etc. are mentioned.

These are independent, respectively or can be used combining two or more sorts. Also in these, talc, mica, or glass fiber is preferably used as what raises low-temperature impact resistance, a moldability, and paintwork, for example.

[0021]In this invention, a still more specific phenolic antioxidant (C), a specific sulfur system antioxidant (D), a specific nitrogen-containing compound (E), and a specific epoxy compound (F) are blended with such a polyolefin system synthetic resin (A) and an inorganic bulking agent (B).

[0022]A phenolic antioxidant of an ingredient (C) is chosen from the following compound group, and these may be used independently, respectively and can also be used combining two or more sorts.

[0023]3,9-screw [2-{3-(3-t-butyl-4-hydroxy-5-methylphenyl) propionyloxy}-1,1-dimethylethyl] -2, 4, 8, 10-tetraoxaspiro [5.5]An undecane, 1,3,5-tris (3,5-di-t-butyl-4-hydroxybenzyl) isocyanurate, and tetrakis [3-(3,5-di-t-butyl-4-hydroxyphenyl) propionyloxymethyl] Methane.

[0024]A sulfur system antioxidant of an ingredient (D) is said general formula. (D-I) Or it is shown by (D-II). General formula (D-I) And in (D-II), R^1 is the alkyl of the carbon numbers 4-20, and desirable carbon numbers of alkyl are 6-18. It may use independently, respectively, and two or more sorts may be combined and these sulfur system antioxidants may also be used. The following is mentioned as an example of a sulfur system antioxidant (D) used by this invention.

[0025]Dilauryl 3,3'-thiodipropionate, dimyristyl 3,3'-thiodipropionate, distearyl 3,3'-thiodipropionate, tetrakis (3-laurylthio propionyloxymethyl) methane.

[0026]A nitrogen-containing compound of an ingredient (E) is said general formula. (E-I) Or (E-III) is shown by either.

[0027]General formula (E-I) And in (E-II), R^2 is alkyl or the alkenyl and each carbon number is 5-21. Alkyl of the thing 11-21 which has carbon numbers comparatively large also in these, for example, carbon numbers, or alkenyl of the carbon numbers 11-21 is preferred. n in a general formula (E-I) is an integer of 1-6.

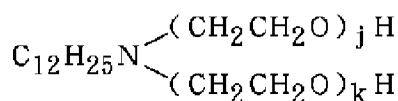
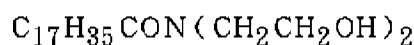
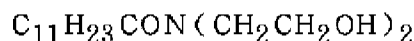
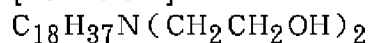
[0028]In a general formula (E-III), R^3 is alkyl, alkenyl, or acyl and a carbon number of alkyl or alkenyl and the number of total carbon of acyl are 8-18 here, respectively. Acyl expressed with R^3 has preferred alkanoyl or ARUKE noil shown by R^4CO- , and R^4 is alkyl of the carbon numbers 7-17, or the alkenyl of the carbon numbers 7-17 here. Especially as R^3 , alkyl or alkanoyl is preferred. j and k in a general formula (E-III) are one or more, respectively, and they are chosen so that j+k may go into the range of 2-10. Although a compound whose j and k in a general formula (E-III) are 1, respectively is usually obtained as an item, generally a compound in which j+k exceeds two is obtained as a mixture with constant j+k.

[0029]As an example of a compound shown by a general formula (E-I), methylene-bis-

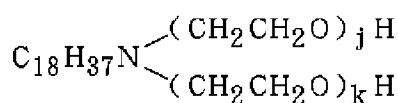
stearylamine, ethylene-bis-stearylamine, ethylene bis(oleylamine), hexa methylene-bis-stearylamine, etc. are mentioned. As an example of a compound shown by a general formula (E-II), lauric acid amide, octadecanamide, oleic amide, behenic acid amide, erucic acid amide, etc. are mentioned. The following is mentioned as an example of a compound shown by a general formula (E-III).

[0030]

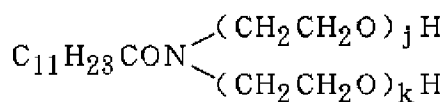
[Formula 7]



(j + k = 4、8 または 10)



(j + k = 4、8 または 10)



(j + k = 4、8 または 10)

[0031] These general formulas (E-I) or (E-III) the nitrogen-containing compound (E) shown is all effective in this invention, independent, respectively, or can be combined two or more sorts and can be used (E-II). In this invention, it divides and ethylene-bis-stearylamine, erucic acid amide, or N,N-bis(2-hydroxyethyl)stearylamine is used preferably.

[0032] Generally an epoxy compound shown by said general formula (F-I) of an ingredient (F) is manufactured by a condensation reaction of bisphenol A and epichlorohydrin. Therefore, an epoxy compound (F) is usually a set of a molecule with some repetition numbers (q). After once refining condensation reaction output of bisphenol A and epichlorohydrin and arranging q with a narrow range, the condensation reaction of bisphenol A and the epichlorohydrin is carried out further, and there are some which were used more as an epoxy compound (F) of the amount of polymers.

[0033] Although a thing to about about 35 is marketed for q in said general formula (F-I) by 0 or more and average value and there are a solid thing and a liquefied thing at ordinary temperature, all can be used in this invention. Of course, these can also be used independently, respectively and two or more sorts may be used together. As for this epoxy

compound, generally, by a weight per epoxy equivalent, a difference is expressed and the weight per epoxy equivalent 170 [about] - an about 5000 abbreviation thing are preferably used in this invention. A thing in which a weight per epoxy equivalent exceeds about 5000, or a thing in which q in a general formula (F-I) exceeds an average of about 35 can also be used in this invention, if available.

[0034]Although a blending ratio in particular of each ingredient in this invention is not limited, generally, About a polyolefin system synthetic resin (A) and an inorganic bulking agent (B), an inorganic bulking agent (B) is used at 5 to 40% of the weight of a rate preferably [making it a blending ratio of an inorganic bulking agent (B) to a polyolefin system synthetic resin (A) be 1 to 50 % of the weight], and more preferably. When it is not enough for quantity of an inorganic bulking agent (B) to raise mechanical properties, such as rigidity, dimensional stability, and heat resistance, to a polyolefin system synthetic resin (A) as for less than 1% of the weight of a case and 50 % of the weight is exceeded, a problem may be produced in a moldability etc.

[0035](C) If the amount used with each preferred ingredient of - (F) is described, a total of 100 weight sections of a polyolefin system synthetic resin (A) and an inorganic bulking agent (B) are received, Phenolic antioxidant (C) It is 0.001 to 1 weight section, and is a sulfur system antioxidant (D). 0.002 - the amount part of duplexs, a nitrogen-containing compound (E), and an epoxy compound (F) are each. It is 0.01 to 5 weight section. As opposed to a total of 100 weight sections of a polyolefin system synthetic resin (A) and an inorganic bulking agent (B), Phenolic antioxidant (C) Less than 0.001 weight section, sulfur system antioxidant (D) Less than 0.002 weight section, Nitrogen-containing compound (E) 0.01 Less than a weight section or an epoxy compound (F) is 0.01. When it is less than a weight section, even if the target effect is difficult to get enough and blends exceeding one weight section, the amount part of duplexs, five weight sections, or five weight sections, respectively, only an effect of balancing it is not acquired but, also economically, it becomes disadvantageous.

[0036]A polyolefin-system-resin constituent of this invention may use together other additive agents, for example, processing stabilizer, an antioxidant, light stabilizer, a metal deactivator, metallic soap, a nucleating agent, a spray for preventing static electricity, lubricant, fire retardant, a release agent, an antifungal agent, paints, etc., unless the characteristic is spoiled.

[0037]The following can be mentioned as an example of processing stabilizer which can be used.

[0038]2-t-butyl-6-(3-t-butyl-2-hydroxy-5-methylbenzyl)-4-methylphenyl Acrylate, 2 - [1-(2-hydroxy-3,5-di-t-pentylphenyl) ethyl] -4,6-di-t-pentylphenyl Acrylate.

[0039]As an antioxidant, phenolic antioxidants other than an ingredient (C), sulfur system antioxidants other than an ingredient (D), the Lynn system antioxidant, etc. are mentioned. The following can be mentioned as an example of the Lynn system antioxidant.

[0040]Tris (nonylphenyl) Phosphite, tris (2,4-di-t-buthylphenyl) phosphite, Bis(2,4-di-tert-butylphenyl) Pentaerythritol Diphosphite, Bis(2,6-di-t-butyl-4-methylphenyl)pentaerythritol Diphosphite, Distearyl Pentaerythritol Diphosphite and tetrakis (2,4-di-t-buthylphenyl) 4 and 4'-biphenylene diphosphonate, 2,2'-ethylidenebis(4,6-di-t-buthylphenyl)fluoro phosphite, 2,2'-methylene bis (4,6-di-t-buthylphenyl) octylphosphite.

[0041]As light stabilizer, ultraviolet ray absorbents, such as for example, a benzotriazol system, a benzophenone series, a hydroxy benzoate system, and a cyanoacrylate system, a nickel series quencher, and a hindered amine light stabiliser are mentioned.

[0042]The following can be mentioned as an example of an ultraviolet ray absorbent.

[0043]A 2-(3-t-butyl-2-hydroxy-5-methylphenyl)-5-chlorobenzotriazole, 2-(3,5-di-t-butyl-2-hydroxyphenyl) benzotriazol, 2-(2-hydroxy-5-methylphenyl) benzotriazol, 2-(2-hydroxy-5-t-octylphenyl) benzotriazol, 2-(3,5-di-t-amyl 2-hydroxyphenyl) benzotriazol, 2 - [2-hydroxy-3-(3,4,5,6-tetrahydro phthalimidomethyl)-5-methylphenyl] Benzotriazol, 2 - [2-hydroxy-3,5-bis (alpha and alpha-dimethylbenzyl)phenyl] Benzotriazol, 2-hydroxy-4-octyloxy benzophenone, 2-hydroxy-4-methoxybenzophenone, 2,4-di-t-buthylphenyl 3,5-di-t-butyl-4-hydroxy benzoate, ethyl 2-cyano 3,3-diphenyl acrylate.

[0044]The following can be mentioned as an example of a hindered amine light stabiliser.

[0045]Bis(2, 2, 6, and 6-tetramethyl 4-piperidyl)sebacate, Bis(1,2,2,6,6-pentamethyl 4-piperidyl)sebacate, 2-methyl-2-(2,2,6,6-tetramethyl 4-piperidyl) amino-N-(2,2,6,6-tetramethyl 4-piperidyl) propionamide, Screw (1,2,2,6,6-pentamethyl 4-piperidyl) 2-(3,5-di-t-butyl-4-hydroxybenzyl)-2-n-butyl malonate, the tetrakis (2, 2, 6, and 6-tetramethyl 4-piperidyl) 1, 2, and 3, 4-butanetetracarboxylate, Pori [{6-(1,1,3,3-tetrametylbutyl) imino-1,3,5-triazine 2,4-diyl} and {(2,2,6,6-tetramethyl 4-piperidyl) imino} hexamethylene {(2, 2, 6, and 6-tetramethyl 4-piperidyl) imino one}] Pori[(6-morpholino 1,3,5-triazine 2,4-diyl) {(2,2,6,6-tetramethyl 4-piperidyl) imino} Hexamethylene {(2, 2, 6, and 6-tetramethyl 4-piperidyl) imino one}] Succinate dimethyl A polycondensation thing, N,N'-bis(3-aminopropyl)ethylenediamine and a 2,4-screw with 1-(2-hydroxyethyl)-4-hydroxy-2,2,6,6-tetramethylpiperidine [N-butyl-N-(1,2,2,6,6-pentamethyl 4-piperidyl) amino] A condensate with-6-chloro-1,3,5-triazine, 1,2,2,6,6-pentamethyl 4-PIPERIDI Norian and 3,9-bis(2-hydroxy- 1, 1-dimethylethyl)-2, 4 and 8, 10-tetraoxaspiro [5.5]Undecane Condensate with 1,2,3,4-butanetetracarboxylic acid.

[0046]The following can be mentioned as an example of a metal deactivator.

[0047]N,N'-diphenyl[diamide] oxalate, N-salicylidene N'-Sarych roil hydrazine, N,N'-bis (Sarych roil)hydrazine, a N,N'-screw [3-(3,5-di-t-butyl-4-hydroxyphenyl) propionyl] Hydrazine, 3-Sarych roil amino-1,2,4-triazole, bis(benzyl)ene)oxalic acid dihydrazide.

[0048]The following can be mentioned as an example of a nucleating agent.

[0049]Sodium salt of aromatic monocarboxylic acids, such as benzoic acid, toluic acid, and p-t-butyl benzoic acid, Alkali metal salt, such as calcium salt, or alkaline earth metal salt; 1,3 and

2,4-JI (benzylidene) sorbitol, Dibenzylidenesorbitol, such as 1,3 and 2,4-JI (p-methylbenzylidene) sorbitol, 1,3, 2,4-JI (p-ethylbenzylidene) sorbitol; Sodium bis(4-t-buthylphenyl)phosphate, Metal salt of aromatic phosphoric acid compounds, such as sodium 6,6'-methylenebis (2,4-di-t-buthylphenyl) phosphate.

[0050]The following can be mentioned as an example of fire retardant.

[0051]Tricresyl phosphate, triphenyl phosphate, diphenyl octyl phosphate, Phosphoric ester, such as tributyl phosphate; Tris (2-chloroethyl) phosphate, Halogen-containing phosphoric ester, such as tris (2,3-dibromopropyl) phosphate; Vinylchloro acetate, Halogen-containing vinyl compounds, such as bromostyrene and bromophenyl allyl ether; A chlorinated paraffin, Bromination polyphenyl, a par chloro pentacyclo decane, tetrabromo ethane, Halogenated compounds, such as a hexabromocyclododecane, tetrachlorophthalic anhydride, tetrabromo phthalic anhydride, tetrabromobisphenol A, and decabromo diphenyloxide; metal-containing inorganic compounds, such as antimonous oxide and aluminium hydroxide

[0052]The following can be mentioned as an example of paints.

[0053]Inorganic pigments, such as carbon black, a titanium white, titan yellow, iron oxide, and cadmium red; polycyclic organic colors, such as a phthalocyanine system, a quinacridone series, a perylene system, the Anthraquinone system, and an isoindolinone system.

[0054]

[Example]This invention is not limited by these, although an example is given and this invention is explained still in detail hereafter. Especially the part and % in an example express weight section and weight %, respectively, unless it refuses.

[0055]The sample offering compound used in the example is as in the following table, and is expressed as each sign below.

[0056]

[Table 1] Inorganic bulking agent B-1: Talc [micron white 5000S(trade name): -- a wood -- Transformation -- make --]

B-2: Mica [Product made from S-150:(trade name) REPUKO]

[0057]

[Table 2] Phenolic antioxidant C-1:3,9-screw [2-{3-(3-t-butyl-4-hydroxy-5-methylphenyl) propionyloxy}-1,1-dimethylethyl] -2, 4, 8, 10-tetraoxaspiro [5.5]Undecane C-2:1,3,5-tris (3,5-di-t-butyl-4-hydroxybenzyl) isocyanurate C-3: Tetrakis [3-(3,5-di-t-butyl-4-hydroxyphenyl) propionyloxymethyl] Methane C-4:2,2'-thiodiethylenescrew [3-(3,5-di-t-butyl-4-hydroxyphenyl) propionate]

C-5: Triethylene glycol Screw [3-(3-t-butyl-4-hydroxy-5-methylphenyl) propionate]

[0058]

[Table 3] Sulfur system antioxidant D-1: Distearyl 3,3'-thiodipropionate D-2: Tetrakis (3-laurylthio propionyloxymethyl) methane [0059]

[Table 4] nitrogen-containing compound E-1: -- ethylene-bis-stearylamine -- E-2:erucic acid amide E-3:N,N-bis(2-hydroxyethyl)stearylamine [0060]

[Table 5] Epoxy-compound F-1: Bisphenol A type glycidyl ether system epoxy compound [The product made from Epicoat 1002:(trade name) Oil recovery Shell Epoxy, the weight per epoxy equivalents 600-700]

F-2: Bisphenol A type glycidyl ether system epoxy compound [The product made from Epicoat 1007:(trade name) Oil recovery Shell Epoxy, the weight per epoxy equivalents 1750-2200]

F-3: o-cresolnovolak type epoxy compound [The product made from Epicoat 180S 65:(trade name) Oil recovery Shell Epoxy, the weight per epoxy equivalents 205-220]

[0061]The constituent was prepared by the combination shown in Table 6 - 9 using unstabilized propylene / ethylene block copolymer (ethylene content 7.3%). Among front, the quantity of propylene / ethylene block copolymer, and an inorganic bulking agent is each rate (%) over both total weight, and shows the quantity of other ingredients at a rate (part) of each ingredient over a total of 100 copies of a block copolymer and an inorganic bulking agent. After mixing each constituent with a Henschel mixer, it kneaded and pelletized with the 30 mmphi twin screw extruder (the product made from NAKATANI Machinery, and NAS30 type, 230-240 ** of cylinder temperatures). From this pellet, a 40x60x1-mm sheet was fabricated with a 1 uncia injection molding machine (Product made from the Yamashiro energy machine, a SAV-30A type, 220-240 ** of cylinder temperatures).

[0062]From the obtained sheet, a 40x40x1-mm specimen was created, and thermal oxidation stability and the hue of the specimen were evaluated. The stability to thermal oxidation put the specimen in 150 ** gear oven, and judged it by time (embrittlement life) until embrittlement arises in a specimen. It means that the stability to thermal oxidation is excellent, so that an embrittlement life is long. Hue was judged with the yellow degree index (yellowness index : YI) of the test piece surface after shaping. It means that hue is excellent, so that YI is small. A result is shown in Table 6 - 9.

[0063][Table 6]

本発明例

Run No.	配 合						試験結果	
	ブロッ ク共重 合体	無機 充填 剤	フェノー ル系酸化 防止剤	イオウ 系酸化 防止剤	含窒素 化合物	エポキシ 化合物	150 ℃ 脆 化 ライフ	色 相
	%	種類 %	上段： 種類 下段： 部				(hr)	(YI)
1	80	B-1 20	C-1 0.02	D-1 0.04	E-1 0.15	F-1 0.15	555	4.8
2	80	B-1 20	C-2 0.02	D-1 0.04	E-1 0.15	F-1 0.15	545	6.5
3	80	B-1 20	C-3 0.02	D-1 0.04	E-1 0.15	F-1 0.15	530	5.5
4	80	B-1 20	C-1 0.02	D-2 0.04	E-1 0.15	F-1 0.15	795	5.0
5	80	B-1 20	C-1 0.02	D-1 0.04	E-2 0.15	F-1 0.15	540	7.2

[0064] [Table 7]

本発明例（つづき）

6	80	B-1 20	C-1 0.02	D-1 0.04	E-3 0.15	F-1 0.15	460	4.9
7	80	B-1 20	C-1 0.02	D-1 0.04	E-1 0.15	F-2 0.15	550	4.3
8	60	B-1 40	C-1 0.04	D-1 0.08	E-1 0.25	F-1 0.25	815	5.7
9	80	B-2 20	C-1 0.02	D-1 0.04	E-1 0.15	F-1 0.15	450	5.6

[0065] [Table 8]

比較例

Run No.	配 合						試験結果	
	ブロッ ク共重 合体	無機 充填 剤	フェノー ル系酸化 防止剤	イオウ 系酸化 防止剤	含窒素 化合物	エポキシ 化合物	150 ℃ 脆 化 ライフ	色 相
	%	種類 %	上段： 種類 下段： 部				(hr)	(YI)
11	80	B-1 20	C-4 0.02	D-1 0.04	E-1 0.15	F-1 0.15	270	5.8
12	80	B-1 20	C-5 0.02	D-1 0.04	E-1 0.15	F-1 0.15	290	5.0
13	80	B-1 20	C-1 0.02	D-1 0.04	E-1 0.3	—	390	3.8
14	80	B-1 20	C-2 0.02	D-1 0.04	E-1 0.3	—	150	4.3
15	80	B-1 20	C-3 0.02	D-1 0.04	E-1 0.3	—	350	4.8

[0066] [Table 9]

比較例（つづき）

16	80	B-1 20	C-1 0.02	D-1 0.04	—	F-1 0.3	385	19.4
17	80	B-1 20	C-2 0.02	D-1 0.04	—	F-1 0.3	395	26.3
18	80	B-1 20	C-3 0.02	D-1 0.04	—	F-1 0.3	370	22.5
19	80	B-1 20	C-1 0.02	D-1 0.04	E-2 0.3	—	380	6.6
20	80	B-1 20	C-1 0.02	D-1 0.04	E-3 0.3	—	110	3.8
21	80	B-1 20	C-1 0.02	D-1 0.04	—	F-2 0.3	145	20.4
22	80	B-1 20	C-1 0.02	D-1 0.04	E-1 0.15	F-3 0.15	435	15.6

[0067]

[Effect of the Invention] While the constituent which blended the specific compound with the polyolefin system synthetic resin containing an inorganic bulking agent by this invention shows the stability outstanding to thermal oxidation, there is little coloring, and the stable hue is given.

[Translation done.]